ABSTRACT

A Bose-Einstein condensate (102) of atoms is compressed and/or rapidly de-condensed in a reaction chamber (104) by a beam (109) in order to achieve nuclear fusion. A pre-formed Bose-Einstein condensate of atoms may be introduced into the reaction chamber (104), or the constituent atoms of the Bose-Einstein condensate may be introduced into the reaction chamber (104) with formation of the Bose-Einstein condensate from the constituent atoms occurring subsequently inside the reaction chamber (104). The constituent atoms of the Bose-Einstein condensate may be bosons, Fermions or both. The beam (109) is directed at and focused on the Bose-Einstein condensate so as to maximize the total compression of the Bose-Einstein condensate. Upon de-condensing, the Bose-Einstein condensate atoms fuse, releasing substantial amounts of energy. This energy is harnessed and used to drive a turbine (120) to run a generator (122).